vibratory perception with hip cartilage and labral lesions was also evaluated.

Methods: The data for this study are from participants recruited for a longitudinal observational study on hip OA. Subjects were recruited from the community using flyers and advertisements. The inclusion criteria for ROA patients (+RHOA) were Kellgren-Lawrence (KL) grade of 2 or 3 at the hip on weight-bearing anterior-posterior radiographs. The side with greater KL grade was selected as the "index hip". The control subjects (-RHOA) had a radiographic KL grade of 0 or 1 at both hips, and were without history of diagnosed OA or previous hip injuries. General exclusion criteria for recruitment into the study for all subjects were any contra-indications to MR imaging, KL grade of 4, a total joint replacement of any lower extremity joint, previous hip trauma, pain at any other lower extremity joint, radiographic evidence of any knee or ankle joint OA, systemic inflammatory arthritis or any other spine or lower extremity condition that would affect their ability to complete the study procedures. Vibratory perception threshold (VPT) testing was added to the study protocol 18 months after study initiation and hence data are available from a subset of the original study participants. VPT testing was performed using a commercial biothesiometer (Bio-medical Instrument Company, Newbury, OH, USA). The anatomic sites evaluated for VPT included bilateral 1st Metatarsophalangeal joint (MTP), medial malleolus (MM), medial femoral condyle (MF), and radial head (RH). Each familiarization with the testing method, each subject performed three trials at each anatomical site, and the mean of last 2 trials used in the analyses. Additional outcomes included semi-quantitative morphological grading of hip cartilage and labral lesions from 3.0 Tesla MR images using the Scoring of Hip Osteoarthritis with MRI (SHOMRI). Patient-reported outcomes included the Hip Osteoarthritis Outcome Score (HOOS), and physical function was evaluated with the 6 minute walk test (6MWT), and the Timed-up and Go Test (TUG). Multivariate ANOVA (adjusted for age) was used to evaluate the differences in VPT scores between the groups. Non-parametric partial correlations adjusted for age were used to evaluate the association of KL and clinical MRI scores with VPT.

Results: VPT data were available from a subset of the original study participants in the +RHOA (n = 12, Age = 54.3±13.6 years; BMI = 23.5±2.9 kg/m^2; 9M:3W) and -RHOA groups (n=27; Age = 41.5±12.2 years; BMI = 23.3±3.3 kg/m^2; 13M:14W). The +RHOA group was older (P = 0.006) hence all analyses were adjusted for age. There were no significant differences between the groups for HOOS, 6MWT, or TUG. Mean HOOS scores for both groups were > 85%. After adjusting for age, there were no differences in VPT at any site between the subjects with (KL >1) and without (KL <2) radiographic hip OA (Table 1).

Table 1. VPT scores for the 2 groups.

VPT Scores			Mean	Std. Deviation	P value (after adjusting for age)
Scanned	MTP	-RHOA	8.0	3.7	0.073
		+RHOA	15.9	12.0	
	MM	-RHOA	14.3	9.1	0.929
		+RHOA	19.5	12.5	
	MFC	-RHOA	17.1	6.3	0.567
		+RHOA	22.4	12.4	
	RH	-RHOA	11.5	3.5	0.141
		+RHOA	17.0	10.9	
Contralateral	MTP	-RHOA	9.3	6.0	0.349
		+RHOA	16.7	12.9	
	MM	-RHOA	13.7	6.7	0.182
		+RHOA	23.1	15.5	
	MFC	-RHOA	16.4	6.2	0.154
		+RHOA	24.3	12.8	
	RH	-RHOA	10.6	2.9	0.491
		+RHOA	14.3	10.3	

However, after adjusting for age, subjects with KL = 3 (n = 5) had higher VPT scores compared to subjects with lower KL grades at most sites. Higher VPT scores were associated with higher radiographic KL and morphological MRI scores. However this association was not significant after adjusting for age and p-values for multiple comparisons (Table 2).

Table 2
Partial Spearman's Rank Correlations between structural hip OA parameters and VPT scores after adjusting for age.

		Scanned				Contralateral			
		MTP	MM	MFC	RH	MTP	MM	MFC	RH
Cartilage Lesions	ρ	.277	-.005	.119	.169	.194	.132	.073	.071
	P value	.092	.975	.475	.310	.244	.430	.665	.672
BMEL	ρ	.139	-.056	.070	.319	.217	.094	.151	.185
	P value	.405	.738	.676	.051	.190	.575	.366	.265
Subchondral Cyst	ρ	.367	.020	.034	.386	.107	.265	.024	.260
	P value	.023	.906	.837	.017	.522	.108	.885	.115
Labral Tear	ρ	.228	.199	.087	-.103	.015	.359	-.157	-.042
	P value	.168	.231	.602	.537	.929	.027	.345	.804
KL	ρ	.282	.135	.057	.295	.362	.199	.156	.106
	P value	.087	.418	.732	.073	.026	.231	.348	.527

Conclusions: In this small substudy, vibratory deficits were not different between subjects with and without radiographic hip OA. However, we did observe modest difference in vibratory sensation in subjects with both age and more advanced radiographic hip OA.

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ASSOCIATION BETWEEN POPLITEAL ARTERY WALL THICKNESS AND KNEE CARTILAGE VOLUME LOSS IN COMMUNITY-BASED MIDDLE-AGED WOMEN WITHOUT CLINICAL KNEE DISEASE: A PROSPECTIVE COHORT STUDY

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Purpose: Increasing evidence suggests a role of vascular pathology in the pathogenesis of osteoarthritis. This study examined the association between popliteal artery wall thickness, a surrogate marker of cardiovascular disease, and knee cartilage volume loss in an asymptomatic cohort of women.

Methods: 170 women with no significant knee pain, injury, or history of clinical knee disease underwent knee magnetic resonance imaging at baseline and 2 years later. Popliteal artery wall thickness and knee cartilage volume and bone area were assessed using validated methods.

Results: 142 women (83.5%) completed 2-year follow-up. After adjusting for age, body mass index and tibial bone area, increased popliteal artery wall thickness was associated with increased rate of medial tibial cartilage volume loss. With increasing tertiles of popliteal artery wall thickness, the mean (standard error) of annual medial tibial cartilage volume loss was 1.62 (0.45)%, 2.18 (0.43)%, and 2.98 (0.48)%, respectively, p for trend = 0.04. No significant association was observed in lateral tibial cartilage.

Conclusions: In community-based women increased popliteal artery wall thickness is associated with adverse changes in knee cartilage as evidenced by increased rate of cartilage volume loss over 2 years. These findings suggest an association between vascular pathology and early knee structural changes, supporting the hypothesis that there is a vascular contribution to the development of knee osteoarthritis. Although needing to be confirmed in other studies, these results suggest that targeting vascular pathology may provide a potential target for the prevention and early treatment of knee osteoarthritis in women.

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PAIN DISTRIBUTION IN PRIMARY CARE PATIENTS WITH HIP OSTEOARTHRITIS – A DESCRIPTIVE STUDY

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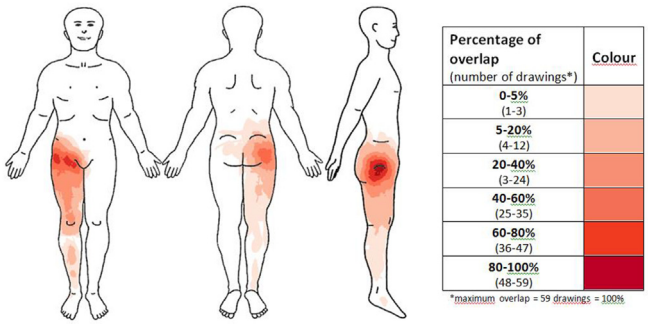
Purpose: To describe pain location and pain distribution in a cohort of primary care patients with unilateral hip osteoarthritis (OA).

Methods: Primary care patients with unilateral clinical and radiographic hip OA, participating in a randomized clinical trial, recorded at baseline pain intensity using an 11-box numeric rating scale, pain duration in months and the distribution of hip pain using a manikin displaying three separate views: front, back and lateral. Pain drawings were analysed using a template to determine pain locations and distribution of pain. Drawings were subsequently digitally processed to produce a composite image using colours to illustrate frequency.
Results: A total of 108/109 (99%) patients completed pain drawings according to instructions. One drawing consisted of a single line but the identified areas were included in the analyses of pain location and the composite image. The mean age was 65 (SD 9), 44% were females, the right/left hip ratio was 66/43 respectively, the mean pain duration was 32 months (SD 36, range 4–300), and mean pain intensity was 5.4 (SD 2.0). A total of 77% had marked the area of the greater trochanter, 53% the groin, 42% the anterior/lateral thigh, 38% the buttock, 17% the knee and 15% the lower leg. Less than 20% of the patients reported pain in only one area, most commonly the greater trochanter area (16%). Between 1-2% of the patients reported pain only at the groin, buttock or anterior/lateral thigh. No patients marked pain exclusively in the areas of the knee, posterior thigh or lower leg. The composite images of the cumulated pain drawings in the three planes are illustrated in Figure 1.
Conclusions: To our knowledge, this is the first study describing pain location and distribution in a cohort of patients presenting to primary care with hip pain and unilateral hip OA. In descending order, the most common pain locations are the greater trochanter, groin, thigh and buttock areas. No patients with hip OA reported pain exclusively in the knee or to the lower leg areas. When adult patients in primary care present with pain in the greater trochanter, groin, anterior lateral thigh or buttock areas, the clinician as a minimum should include a physical examination of the hip joint.

Figure 1. Cumulative pain drawings demonstrating pain location and pain distribution of 109 patients with unilateral hip OA.



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CONCERNS IMPORTANT TO ELDERLY PATIENTS WITH HAND OSTEOARTHRITIS: A QUALITATIVE MULTI-ETHNIC ASIAN STUDY

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Purpose: Hand osteoarthritis (HOA) is common but little is known about how to measure the impact on disability and quality of life (QoL) among patients with HOA. None of the existing HOA specific instruments was patients-derived. With the ageing population, there is a need to develop instruments in patients' perspective for measuring disability and QoL for use in future drug trials. We aim to identify important concerns among patients suffering from symptomatic HOA in Singapore. It is the first study with participation of patients from the Asian socio-cultural context.
Methods: A qualitative study using a focus group technique was performed. Patients with symptomatic HOA according to American college of Rheumatology Classification criteria were recruited from outpatient clinic of a tertiary centre. Focus groups were conducted as stratified by gender, ethnicity and language. All discussions were audio-taped and analyzed in an inductive approach. Areas of concern important to study participants were then compared to the following commonly used HOA specific instruments: FIHOA, SACRAH, AUSCAN and HAQ.
Results: Twenty-six patients [23 women, 3 men; 23 Chinese and 3 Malay; mean (SD) age 62.9 (7.5) years] participated in seven focus groups. Two and five focus groups were conducted in Chinese and English respectively. The qualitative analysis revealed detailed descriptions of pain sensations at different qualities, and its relation to activity and environment, none of which were fully represented in the existing instruments. Psychological consequences, aesthetic concerns, participation in leisure activities, participation in family roles and social activities are important concerns from the focus groups which were not covered by the existing instruments. Important QoL concerns that impact on the Asian style of living including eating, cooking and praying was revealed. Impact on work productivity by HOA was also revealed. Out of the 59 concerns among patients with HOA, only 16 concerns (27%) were covered with the existing instruments.
Conclusions: The concerns important to HOA patients are not fully represented in the most commonly used instruments, which were not patient-derived. This qualitative study helps to refine the concerns of people with HOA in patients' perspectives. It gives information on selection of domains for the development of instrument that measure QoL of HOA patients.

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THE ROLE OF cYTOKINES IN PATIENTS WITH OSTEOARTHRITIS AND TYPE 2 DIABETES MELLITUS

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Purpose: to investigate influence of concentration in plasma tumor necrosis factor-α (TNF-α), interleukin-1β (IL-1β) on articular syndrome and parameters of carbohydrate metabolism in patients with osteoarthritis (OA) and type 2 diabetes mellitus (T2DM).
Methods: The study was performed on 65 patients (29 males), aged 57.9 ± 3.2 with combination OA and T2DM in Regional Hospital of Kharkov. Baseline characteristics of patients included history of OA (7.1 ± 2.3 years), T2DM (8.1 ± 2.5 years). All patients were divided into 2 groups: group 1 (n = 30) – with combined course of OA and T2DM with normal body weight, group 2 (n = 35) – with combined course of OA and T2DM with obesity (BMI≥ 30 kg/m^2). The survey plan included: anthropometric data, indices of carbohydrate exchange (insulin, glucose, HbA1C, HOMA-IR) and level of C-reactive protein (CRP). The level of HbA1C was <7.5% in all patients. The level of TNF-α and IL-1β was determined by ELISA. All patients were made X-ray examination of knees.
Results: Significant correlation between TNF-α and CRP was determined in 1st group (r=0.59; p<0.05) and 2nd group (r=0.72; p<0.05), also correlation between IL-1β and CRP was determined in 1st group (r=0.61; p<0.05) and 2nd group (r=0.78; p<0.05). Among the 1st group of patients the level of insulin resistance was correlated with TNF-α (r=0.36; p<0.05) and IL-1β (r=0.42; p<0.05). More significant correlation between TNF-α and glucose (r=0.44; p<0.05), HbA1C (r=0.54; p<0.05), insulin resistance (r=0.74; p<0.05), HOMAIR (r=0.63; p<0.05) and between IL-1β and glucose (r=0.42; p<0.05), HbA1C (r=0.40; p<0.05), insulin resistance (r=0.52; p<0.05), HOMAIR (r=0.50; p<0.05) was determined in 2nd group with comorbid pathology and obesity. We noticed, the degree of X-ray changes (by Kellgren-Lawrence) were more in 2nd group in compare with the 1st group.
Conclusions: Significant correlation between TNF-α, IL-1β and CRP, glucose, HbA1, insulin resistance, HOMA-IR in group of patients with comorbid pathology and obesity means, that obesity is important factor of pathogenesis relationship immune and metabolic processes in patients with OA and T2DM.

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SOLUMATRIX DICLOFENAC SAFETY IN OLDER PATIENTS WITH OSTEOARTHRITIS PAIN

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Purpose: SoluMatrix® diclofenac is a low-dose nonsteroidal anti-inflammatory drug (NSAID) treatment option developed using SoluMatrix Fine Particle Technology™ to provide effective analgesia at lower doses than commercially available diclofenac drug products. SoluMatrix diclofenac was developed to address concerns regarding the risks for dose-related adverse events (AEs) that have led health